

## Linear Equations Review

### Part One

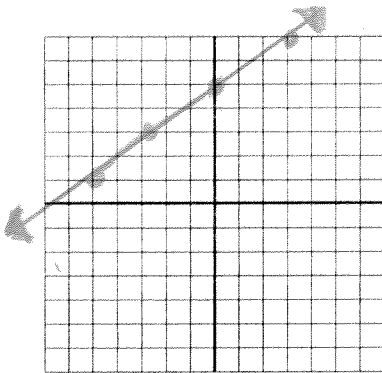
Directions: Please complete the following chart.

m (slope)	b (y-intercept)	Equation in Slope-Intercept Form
$\frac{2}{3}$	2	$y = \frac{2}{3}x + 2$
4	3	$y = 4x + 3$
-1	0	$y = -x$
0	-2	$y = -2$ $y = 0x - 2$
-2	-5	$y = -5 - 2x$
1	7	$y = x + 7$

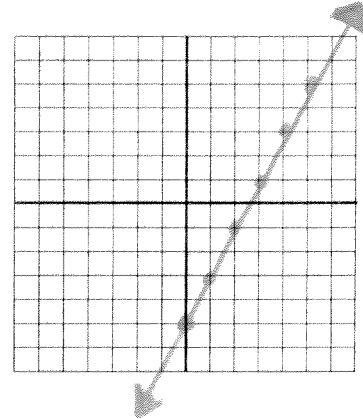
### Part Two

Directions: Graph the following (make sure each equation is in  $y = mx + b$  form before graphing).

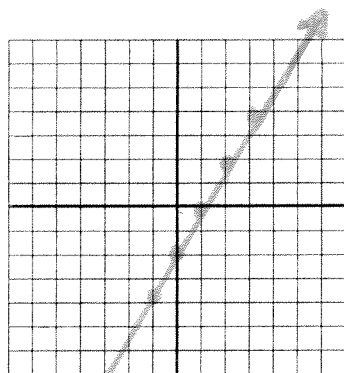
1.  $y = \frac{2}{3}x + 5$   
  
 $m = \frac{2}{3}$   
 $b = 5$



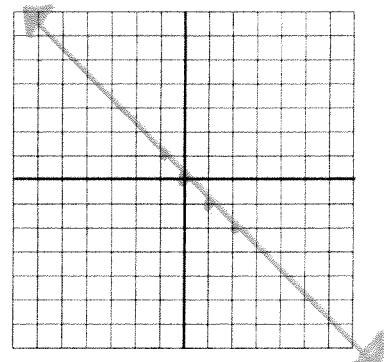
2.  $y = -5 + 2x$   
  
 $m = 2$   
 $b = -5$



3.  $2x - y = 2$   
 $-2x$   
 $-y = -2x + 2$   
 $y = 2x - 2$   
  
 $m = 2$   
 $b = -2$



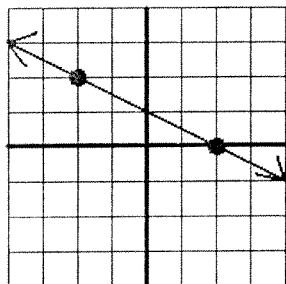
4.  $y = -x$   
  
 $m = -1$   
 $b = 0$



### Part Three

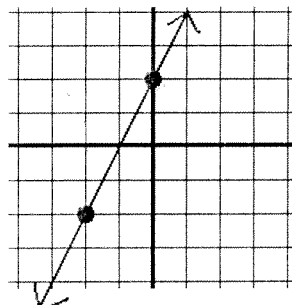
Directions: Please write the equation of the lines graphed below in slope-intercept form.

1.



$m = -\frac{1}{2}$ ,  $b = 1$   
Equation:  $y = -\frac{1}{2}x + 1$

2.



$m = 2$ ,  $b = 2$   
Equation:  $y = 2x + 2$

## Part Four

Directions: Please answer the following.

1. A software consultant charges his clients \$50 for travel expenses and \$125 per hour for his services. Construct a table that represents what he charges his clients for 0, 1, 2, & 3 hours of work. Also, write a linear equation that reflects this scenario.

Table:

# of hours	Total Cost
0	50
1	175
2	300
3	425

$$m = 125, b = 50$$

Equation:  $y = 125x + 50$

## Part Five

Directions: Please graph the following equation using 3 methods.

1. Method 1 – Using Intercepts (complete table) SHOW ALL WORK!
2. Method 2 – Slope intercept Form
3. Method 3 – Table of Values (plug in  $x$  and then find  $y$ ) SHOW ALL WORK!

1. Using Intercepts

$$2y + 3x = 6$$

$$2y + 3(0) = 6$$

$$2y = 6$$

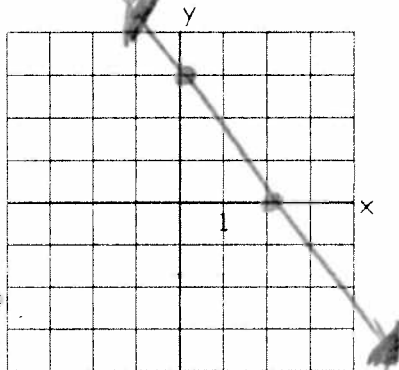
$$y = 3$$

x	y
0	3
2	0

$$3(0) + 3x = 6$$

$$3x = 6$$

$$x = 2$$



2. Slope Intercept Form

$$2y + 3x = 6$$

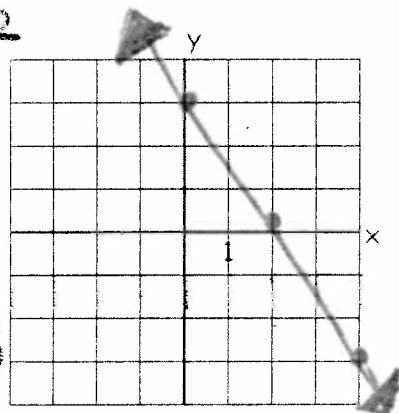
$$2y + 3x = 6$$

$$-3x \quad -3x$$

$$\frac{2y}{2} = \frac{-3x + 6}{2}$$

$$m = -\frac{3}{2}, b = 3$$

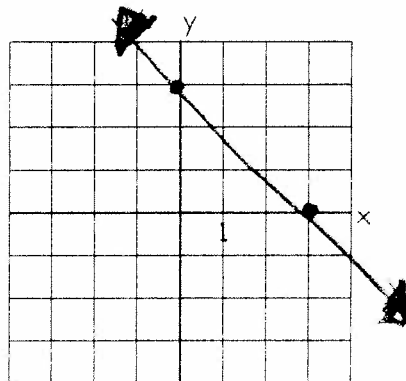
Equation:  $y = -\frac{3}{2}x + 3$



3. Table of Values

$$2y + 3x = 6$$

x	y
-4	9
-2	6
0	3
2	0
4	-3



### Part Six

Directions: Please determine which method would be easier if you were asked to graph the following. Circle one. Then, JUSTIFY YOUR ANSWER in a complete sentence.

1.  $4x + 4y = 8$

with intercepts

slope-intercepts method

2.  $y = 2x + 4$

with intercepts

slope-intercepts method

3.  $3y = 9x + 6$

with intercepts

slope-intercepts method

### Part Seven

Directions: Put the following in slope intercept form ( $y = mx + b$ ).

1.  $2x + 4y = 12$

$$\begin{array}{r} -2x \\ 4y = -2x + 12 \\ \hline y = -\frac{1}{2}x + 3 \end{array}$$

2.  $-3x + y = 5$

3.  $-4x - 4y = 8$

$$\begin{array}{r} +4x \\ -4y = 4x + 8 \\ \hline y = -x - 2 \end{array}$$

4.  $-x - y = 7$

$$y = -x - 2 \text{ or } y = -x - 2$$

5.  $-2x = 6 + 3y$

$$\begin{array}{r} 6 + 3y = -2x \\ -6 \\ 3y = -2x - 6 \\ \hline y = -\frac{2}{3}x - 2 \end{array}$$

6.  $-5x + 4y + 3 = 0$

## Part Eight

Directions: Write in slope-intercept form ( $y = mx + b$ ) given:

1.  $(8, 2)$ ;  $m = -\frac{3}{4}$

$$m = -\frac{3}{4}$$

$$b = 8$$

$$y = -\frac{3}{4}x + 8$$

$$y = -\frac{3}{4}x + 8$$

3.  $(-1, 6)$ ;  $(3, -2)$

$$m = -2$$

$$b = 4$$

$$y = -2x + 4$$

2.  $(-5, 4)$ ;  $m = 0$

$$m = 0$$

$$b = 4$$

$$y = 4$$

$$y = 4$$

$$y = 4$$

4. x-int: 2; y-int: 10

$$(2, 0)$$

$$(0, 10)$$

$$m = \frac{10-0}{0-2} = -5$$

$$m = -5$$

$$m = -5$$

$$b = 10$$

$$y = -5x + 10$$

$$y = mx + b$$

$$0 = -5(2) + b$$

$$0 = -10 + b$$

$$+10 \quad +10$$

$$10 = b$$

## Part Nine

Directions: Write in standard form ( $Ax + By = C$ ) given the following:

(Remember: NO fractions, NO decimals, "A" must be positive)

1.  $y = 3x - 1$

$$-3x \quad -3x$$

$$-3x + y = -1$$

2.  $2\left[y - \frac{1}{2}x - 1\right]$

$$2y = x - 2$$

$$-x \quad -x$$

$$-x + 2y = -2$$

3.  $y + 7 = 2(x + 5)$

$$y + 7 = 2x + 10$$

$$-7 \quad -7$$

$$y = 2x + 3$$

$$-2x \quad -2x$$

$$2x + y = 3$$

4.  $y - 10 = -(x - 2)$

$$y - 10 = -x + 2$$

$$+10 \quad +10$$

$$y = -x + 12$$

$$+x \quad +x$$

$$x + y = 12$$